

**Amendments to the Claims:**

This listing of claims will replace all prior version, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A system for optical heterodyne detection comprising:
  - a first optical path for carrying an input signal;
  - a second optical path for carrying a swept local oscillator signal;
  - optical combining means for combining said input signal and said swept local oscillator signal into a combined optical signal;
  - a third optical path for carrying said combined optical signal;
  - a photodetector optically arranged to receive said combined optical signal from said third optical path, said photodetector generating an electrical signal in response to said combined optical signal;
  - an optical pre-selector optically arranged to filter an optical signal within one of said first, second, and third optical paths, said optical pre-selector having a passband that tracks the frequency of said swept local oscillator signal, said optical pre-selector outputting a filtered portion of said optical signal; and
  - means for adjusting said optical pre-selector passband in response to a measure of the frequency of said swept local oscillator signal and in response to a measure of a portion of said swept local oscillator signal after said portion of said swept local oscillator signal has optically interacted with said optical pre-selector, said optical pre-selector passband being adjusted to track the frequency of said swept local oscillator signal; and
  - a phase modulator for modulating at least some portion of said swept local oscillator signal, said phase modulator being responsive to said means for adjusting and being located along an optical path that is before said optical pre-selector.
2. (canceled)

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3. (currently amended) The system of claim 12 further including means for measuring the frequency of said swept local oscillator signal in real-time, said means for measuring having an output for outputting said measure of said swept local oscillator signal to said adjusting means.
4. (currently amended) The system of claim 12 further including a clock source for controlling the timing of signal modulation caused by said phase modulator.
5. (withdrawn) The system of claim 12 wherein said optical pre-selector is optically arranged to filter said combined optical signal within said third optical path.
6. (withdrawn) The system of claim 5 further including means, located optically between said optical combining means and said photodetector, for tapping a portion of said combined optical signal and for forwarding said tapped portion of said combined optical signal to said adjusting means, said tapped portion of said combined optical signal including said portion of said swept local oscillator signal.
7. (currently amended) The system of claim 12 wherein said optical pre-selector is optically arranged to filter said input signal within said first optical path.
8. (original) The system of claim 7 further including means for tapping said portion of said swept local oscillator signal from said second optical path, passing said portion of said swept local oscillator signal through said phase modulator, delaying said portion of said swept local oscillator signal, and interacting said portion of said swept local oscillator signal with said optical pre-selector.
9. (canceled)
10. (canceled)
11. (canceled)
12. (canceled)

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13. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

21. (canceled)

22. (canceled)

23. (canceled)

24. (canceled)

25. (canceled)

26. (canceled)

27. (canceled)

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